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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,136	03/24/2004	Yutaka Tanaka	740819-1053	2750

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EXAMINER	
ABOAGYE, MICHAEL	
ART UNIT	PAPER NUMBER
1793	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,136	TANAKA ET AL.	
	Examiner	Art Unit	
	MICHAEL ABOAGYE	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) *1 and 2* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/21/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/06/2008 has been entered.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 11/07/2002. It is noted, however, that applicant has not filed a certified copy of the JP application as required by 35 U.S.C. 119(b).

Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in JP on 11/07/2002. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 7 recites the limitation "the step of machining the weld." There is no support for this limitation in the disclosure. There is however support in the disclosure for forming cutaways or holes or cutouts after the friction stir welding (page 6, line 24-page 7, line 1). While these forming techniques can be considered machining the specification does not explicitly or implicitly disclose that the ***weld*** is machined.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brinck et al. (US Patent No. 6,364,250) in view of Dracup et al. (US Patent No. 6,779,707).

Regarding claim 1, Brinck et al. teaches a method for fabricating a frame, comprising the steps of: preparing an outer frame member of T-shaped section (note

examiner interprets 10B and 10c of frame 10 forming a T-section as an outer frame member, figure 3 and column 5, lines 25-35) having an extension of extending inwardly (the portion 10C is interpreted by the examiner as the extension), the outer frame member being formed to have an elongate shape and being curved, said extension having a top surface, a bottom surface and an inner curved edge surface (the examiner interprets the curved member 11 as an inner frame member); said extension having an inner curved edge surface (note the extension member 10A is curved and elongated); preparing an inner frame member (11, figure 3) having preparing an inner frame member having a flat portion abutting against the extension of the outer frame member, the inner frame member being formed to have a elongate shape and being curved in accordance with the shape of the longitudinal direction of the outer frame member, said flat portion having an upper surface, a lower surface and an outer curved edge surface (note the portion of the frame member 11 to be abutted to frame 10 is elongated and curved, see figure 3 and also see an exemplified assembly in figure 11 (34,25,38)); butt welding the outer frame member and the inner frame member along a curve on a seam formed between the outer curved edge surface and the inner curved edge surface with the inner curved edge surface of the extension of the outer frame member abutted against the outer curved edge surface of the inner frame member (column 6, lines 17-30 and figure 11).

Brinck et al. teaches welding the inner frame member (11) to the extension (10A) of the outer frame member (10) by butt welding but fails to specifically teach friction stir welding. However, one reading the reference as a whole would appreciate that the

disclosure's silence as to a particular welding technique is a clear indication that such is not critical to the invention.

Dracup et al. teaches as known in the art to use friction stir welding for joining aircraft structural frames or components since compare to other traditional fusion welding techniques, friction stir welding is a simple process, also improves mechanical properties; diminishes weld defects formation, corrosion resistance, reduces distortion, shrinkage and residual stresses in the material worked upon (Dracup et al., column 1, lines 31-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Brinck et al. to weld the frames by friction stir welding as taught by Dracup et al. since said welding process lends it self to be a simple technique; improved mechanical properties; diminished weld defects formation, corrosion resistance, reduced distortion, shrinkage and residual stresses can be achieved in the material worked upon (Dracup et al., column 1, lines 31-40).

Regarding claim 9, Brinck et al. teaches T-profile, L-profile and I-profile as known section for assembling aircraft parts (see Brinck et al., column 3, lines 5-10, column 5, lines 30-36, column 7, lines 39-41). Brinck et al. does not specifically use an inner frame having an L-profile or section; however the selection of an appropriate frame profile or section for a particular structural assembly would have been within purview of one of ordinary skill in the art.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brinck et al. (US Patent No. 6,364,250) in view of Dracup et al. (US Patent No. 6,779,707) as applied to claim 3 above and further in view of AAPA (applicant's admitted prior art, Applicant's specification page 1 and figures 8-10).

Regarding claim 4, Brinck et al. and Dracup et al. combined teach an inner member of one frame subjected to friction welding but fail to particular disclose an inner frame member comprising two or more frame parts with one abutted against another.

AAPA in figures 9A and 9B show it is known to prepare an inner frame member comprising two frames 106 and 107 to be joined to an outer frame 105 to form an aircraft structural assembly (also see, AAPA, page 1, lines 10-16). The selection of the number of frame parts to constitute the inner frame member would have been within purview of one of ordinary skill in the art, since aircraft parts or component, as exemplified by the wing comprises multiple member elements or frame parts.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brinck et al. (US Patent No. 6,364,250) in view of Dracup et al. (US Patent No. 6,779,707) as applied to claim 3 above and further in view of AAPA (applicant's admitted prior art, Applicant's specification page 1 and figures 8-10) and Litwinski (US Patent No. 6780525).

Regarding claims 5 and 6, Brinck et al. and Dracup et al. combined is silent on heat treatment of finish coating after the friction stir welding.

AAPA teaches, subjecting the individual frames to heat treatment or finish coating prior to joining them by friction stir welding (see, AAPA, figures 8-10).

Litwinski teaches it is known in the art to conduct surface treatment or surface finish processes to improve the strength, hardness and corrosion resistance to structural members, either by subjecting the individual members to said treatment process prior to assembling by friction stir welding or alternatively subjecting the friction stir welded assembly to said surface treatment process (i.e. post friction stir weld surface treatment; see, Litwinski, column 6, lines 40-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Brinck et al., Dracup et al. and AAPA to conduct the surface treatment or finish coating process after the frames has been assembled by friction stir welding as taught by Litwinski since pre-friction stir surface treatment and post friction stir surface treatment are two alternative techniques known in the art, hence substituting one for the other would have only yielded same predictable results of improving the strength, hardness and corrosion resistance of the structural members.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brinck et al. (US Patent No. 6,364,250) in view of Dracup et al. (US Patent No. 6,779,707) as applied to claim 3 above and further in view of Wollastone et al. (US Patent No. 6450394).

Regarding claim 7, Brinck et al. and Dracup et al. combined is silent on machining the weld assembly after friction stir welding.

Wollastone et al. teaches post friction stir welding machining of the weld assembly to remove away material at portions with partial penetration butt weld to expose full penetration at said joint portions (see, Wollastone et al. , column 2, lines 20-26) (Note, partial penetration is a welding defect which affects the structural integrity of the joint).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Brinck et al. and Dracup et al. to machine the weld assembly (or structural assembly) after friction stir welding as taught by Wollastone et al. since by so doing material can be removed away from portions with partial penetration butt weld to expose full penetration joint (see, Wollastone et al., column 2, lines 20-26); to prevent potential structural defects associated with partial penetration butt weld.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brinck et al. (US Patent No. 6,364,250) in view of Dracup et al. (US Patent No. 6,779,707) as applied to claim 3 above and further in view of Anast (Pub. No. US 2003/0080251).

Regarding claim 8, Brinck et al. and Dracup et al. combined is silent on the step of forming cutaways or holes in the frame assembly after friction stir welding the outer frame member and the inner frame member.

Anast teaches it is known in the art to form holes or cutouts in frame members forming an aircraft assembly for the purpose or reducing the entire weight of the assembly or structure (Anast, paragraph [0022]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Brinck et al. and Dracup et al. to form cutout or hole in the frames forming the structural assembly as taught by Anast to reduce the entire weight of the assembly (Anast, , paragraph [0022]).

Response to Arguments

10. Applicant's arguments with respect to claims 3-9 have been considered but are moot in view of the new ground(s) of rejection.

The Declaration under 37 CFR§ 1.131 is moot since the reference to Dracup et al. (US 6986452) which necessitated said Declaration is no longer used in the instant office action. The new reference to Dracup et al. (US 6779707) is only relied upon in this office action to teach friction stir welding. Furthermore said reference does not contain the teachings applicant's Declaration was filed to swear behind.

With respect to the Litwinski et al. reference, no substantive issues and /or arguments were filed in applicant's response/remarks.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL ABOAGYE whose telephone number is (571)272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. A./
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793